

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

LEE, Duck-Rog

YEiL Patent & Trademark International YEiLPAT Bldg.,
669-17, Yorksam-dong, Kangnam-ku Seoul 135-915,
Republic of Korea

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) **07 FEBRUARY 2005 (07.02.2005)**

Applicant's or agent's file reference
YL04017PCT

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2004/002746

International filing date (day/month/year)

28 OCTOBER 2004 (28.10.2004)

Priority date(day/month/year)

14 APRIL 2004 (14.04.2004)

International Patent Classification (IPC) or both national classification and IPC

IPC7 A61K 31/716

Applicant

GLUCAN CORPORATION et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701.
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Yoon, Kyung Ae

Telephone No. 82-42-481-5605

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/002746

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/KR2004/002746

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>3</u>	YES
	Claims	1-2	NO
Inventive step (IS)	Claims	none	<u>YES</u>
	Claims	1-3 <i>η</i>	NO
Industrial applicability (IA)	Claims	1-3	YES
	Claims	none	NO

2. Citations and explanations :

The present invention relates to a pharmaceutical composition for the treatment of osteoporosis comprising beta glucans.

The following documents have been considered for the purpose of this report :

D1 = WO 2004-26339 A2 (01. 04. 2004)

D2 = KR 03-39872 A (22. 05. 2003)

D3 = JP 09-56391 A (04. 03. 1997)

D1 discloses methods of using beta glucans to treat conditions associated with bone loss or low bone density, particularly osteoporosis.

D2 discloses a preparation method of beta glucan derived from *Aureobasidium pullulan* SM 2001 (KCCM 10307).

D3 discloses a preparation method of beta-1,3 glucan obtained from *Aureobasidium pullulans*.

1. Novelty

All the technical features of claims 1 and 2 are disclosed in D1. Therefore, the novelty of claims 1 and 2 is destroyed by D1. Claim 3 is novel, since none of them disclose a pharmaceutical composition for the treatment of osteoporosis comprising beta glucans obtained from *Aureobasidium pullulan* SM 2001 (KCCM 10307). Therefore, the subject matter of claim 3 can be regarded as novel (PCT Article 33(2)).

2) Inventive step

The subject matter of claim 3 differs from the disclosure of D1 in that this application uses *Aureobasidium pullulan* SM 2001 (KCCM 10307) for the preparation of beta glucan. However, the cited document D2 indicated that beta glucan was obtained from *Aureobasidium pullulan* SM 2001 (KCCM 10307). Therefore, the skilled man would arrive at the subject-matter of claim 3 from the combination of teachings of citations D1 and D2 without the exercise of inventive skill. Consequently, the subject-matter of claim 3 is not considered to fulfil the requirement of inventive step (PCT Article 33(3)).

3) Industrial applicability

The subject matter of claims 1-3 meets the criteria set out in PCT Article 33(4).